

**TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371**

SCP-109

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.5)

**09/913995**

INTERNATIONAL APPLICATION NO.

PCT/IT00/00053

INTERNATIONAL FILING DATE

18 February 2000

PRIORITY DATE CLAIMED

26 February 1999

TITLE OF INVENTION

**STRUCTURES WHICH CAN BE DISMANTLED AND FOLDED, CONSISTING OF  
INTERCONNECTING TUBULAR ELEMENTS**

APPLICANT(S) FOR DO/EO/US

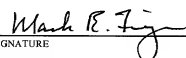
Sergio CAZZOLARO

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
  2. ☐ This is a **SECOND OR SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
  3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
  4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
  5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
    - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
    - b. ☒ has been transmitted by the International Bureau.
    - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
  - ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
    - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
    - b. ☐ have been transmitted by the International Bureau.
    - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
    - d. ☒ have not been made and will not be made.☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
  - ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). (unexecuted, attached to a copy of the International Application)
  - ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).
- Items 11. to 16. below concern other document(s) or information included:
11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
  12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
  13. ☒ A FIRST preliminary amendment.  
☐ A SECOND or SUBSEQUENT preliminary amendment.
  14. ☒ A substitute specification. (attached to a red-ink marked-up version of the English language translation)
  15. ☐ A change of power of attorney and/or address letter.
  16. ☒ Other items or information:
    - Form PCT/IB/301
    - Form PCT/IB/308
    - Form PCT/ISA/210 (English language version, 4 pages)
    - Transmittal of Substitute Specification
    - Certificate of Mailing by Express Mail (2 pages)
    - Return Receipt Postcard

EXPRESS MAIL NO.: EL815472581US

MAILED: 22 August 2001

U.S. APPLICATION NO. (if known, use 37 CFR 1.53) <b>097913995</b>		INTERNATIONAL APPLICATION NO. PCT/IT00/00053		ATTORNEY'S DOCKET NUMBER SCP-109	
17. <input checked="" type="checkbox"/> The following fees are submitted: <b>BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):</b> Search Report has been prepared by the EPO or JPO ..... \$ 860.00  International preliminary examination fee paid to USPTO (37 CFR 1.482) ..... \$ 690.00  No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) ..... \$ 710.00  Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$ 1,000.00  International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) ..... \$ 100.00				<b>CALCULATIONS</b> <b>PTO USE ONLY</b>	
<b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>				\$	860.00
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).					
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	*17 - 20 =		X \$18.00		
Independent claims	2 - 03 =		X \$80.00		
MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+ \$270.00	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$	860.00
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).					
<b>SUBTOTAL =</b>				\$	860.00
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				+	
<b>TOTAL NATIONAL FEE =</b>					
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				+	
<b>TOTAL FEES ENCLOSED =</b>				\$	860.00
* Based upon entry of the First Preliminary Amendment.				Amount to be: refunded	\$
				charged	\$
a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>860.00</u> to cover the above fee is enclosed.  b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.  c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>19-3550</u> . A duplicate copy of this sheet is enclosed.					
<b>NOTE:</b> Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO:  Pauley Petersen Kinne & Fejer 2800 West Higgins Road, Suite 365 Hoffman Estates, Illinois 60195 (847) 490-1400 Fax: (847) 490-1403				SIGNATURE _____  Mark E. Fejer  NAME _____  34,817  REGISTRATION NUMBER _____	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Sergio CAZZOLARO

Title: STRUCTURES WHICH CAN BE  
DISMANTLED AND FOLDED,  
CONSISTING OF INTERCONNECTING  
TUBULAR ELEMENTS

Based Upon: PCT/IT00/00053

Express Mail No.: EL815472581US

Date of Deposit: 22 August 2001

**FIRST PRELIMINARY AMENDMENT**

**Box PCT**  
Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Please amend the subject application as follows to place this application  
in better condition for examination:

In the claims:

1. (Amended) In a composite structure comprising at least two  
coupled structures comprising a plurality of pairs of scissors-connected tubular  
elements having extremities hinged in universal joints, said universal joints being  
integral delimited by substantially equal and parallel faces and forming four seats,

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each in correspondence with a side face to accept hinged elements, the improvement comprising: each of said universal joints forming a groove along each side of a face forming the four seats, proximate to and parallel to a corresponding edge of each said side, which cooperate with a C-sectioned fixing element to hold united two matching said universal joints from the two coupled structures.

2. (Amended) A composite structure according to Claim 1, wherein the at least two coupled structures are superimposed and, in an inside surface of the face of the universal joint having said four seats, forming a fifth seat in which is fixed an extremity of an extendible telescopic tubular element whose other extremity is fixed to an opposed universal joint.

3. (Amended) A composite structure according to Claim 1, wherein the C-sectioned fixing element is a substantially rectangular sheet of flexible material having two opposite folded and inverted edges.

4. (Amended) A composite structure according to Claim 1, wherein a folded and inverted edge of the C-sectioned fixing element has a dimension

and a shape corresponding to the groove on each said side of the face of the universal joint.

5. (Amended) A composite structure according to Claim 1, wherein the C-sectioned fixing element is applied only on each external face of the universal joints that are on an external surface of the structure.

6. (Amended) A composite structure according to Claim 1, wherein the C-sectioned fixing element covers a substantial portion of a corresponding side face of superimposed universal joints and forms cut-outs corresponding to the seats for the hinged extended elements.

7. (Amended) A composite structure according to Claim 1, wherein matching faces of the universal joints of the joined structures forms at least one suitable perforation housing pivots that prevent any movement on a contact surface of the universal joints.

8. (Amended) In a universal joint of substantially parallelepiped form forming four hinging seats in one of a larger face in correspondence with each

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side face, suitable for fixing an extremity of an extended element, each side of the larger face having said four hinging seats forming a groove proximate to and parallel to a corresponding edge of each said side, adapted to cooperate with a C-sectioned fixing element to unite two matched said universal joints.

9. (Amended) A universal joint according to Claim 8, wherein said larger face forms in an internal surface, a fifth seat into which is fixed the extremity of an extendible telescopic tubular element.

Please add the following new claims:

10. (New) A composite structure according to Claim 2, wherein the C-sectioned fixing element is a substantially rectangular sheet of flexible material having two opposite folded and inverted edges.

11. (New) A composite structure according to Claim 2, wherein a folded and inverted edge of the C-sectioned fixing element has a dimension and a shape corresponding to the groove on each said side of the face of the universal joint.

12. (New) A composite structure according to Claim 10, wherein the C-sectioned fixing element is applied only on each external face of the universal joints that are on an external surface of the structure.

13. (New) A composite structure according to Claim 11, wherein the C-sectioned fixing element is applied only on each external face of the universal joints that are on an external surface of the structure.

14. (New) A composite structure according to Claim 10, wherein the C-sectioned fixing element covers a substantial portion of a corresponding side face of superimposed universal joints and forms cut-outs corresponding to the seats for the hinged extended elements.

15. (New) A composite structure according to Claim 11, wherein the C-sectioned fixing element covers a substantial portion of a corresponding side face of superimposed universal joints and forms cut-outs corresponding to the seats for the hinged extended elements.

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16. (New) A composite structure according to Claim 14, wherein matching faces of the universal joints of the joined structures forms at least one suitable perforation housing pivots that prevent any movement on a contact surface of the universal joints.

17. (New) A composite structure according to Claim 15, wherein matching faces of the universal joints of the joined structures forms at least one suitable perforation housing pivots that prevent any movement on a contact surface of the universal joints.

On a separate page, please add the following: **ABSTRACT OF THE DISCLOSURE.**



### **ABSTRACT OF THE DISCLOSURE**

Composite structures obtained by joining two or more structures of the type which presents pairs of joined tubular elements, whose extremity is hinged in universal joints and in which the universal joints are substantially parallelepiped in form and present four seats of hinging corresponding to the sides faces, in which said universal joints present grooves along the sides of the face, in which are scheduled the seats to hinge the extended elements, in proximity of the edges and parallel to the same edges, that cooperate with C-sectioned fixing elements to hold united two matched universal joints belonging to two structures from join.

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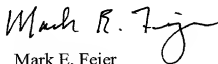
### REMARKS

Applicant respectfully requests entry of the above Preliminary Amendment to place this patent application in better form for examination and prosecution before the U.S. Patent and Trademark Office.

The claims have been amended to eliminate multiple dependent claims and to more definitely and fully claim the subject matter of Applicant's invention. Applicant urges that the above Preliminary Amendment introduces no new matter into this patent application.

Applicant sincerely believes that this patent application is now in condition for examination and prosecution before the U.S. Patent and Trademark Office.

Respectfully submitted,



Mark E. Fejer  
Regis. No. 34,817

Pauley Petersen Kinne & Fejer  
2800 West Higgins Road  
Suite 365  
Hoffman Estates, Illinois 60195  
(847) 490-1400  
FAX (847) 490-1403

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

In the claims:

1. (Amended) [Composite] In a composite structure [obtained by coupling] comprising at least two [or more] coupled structures [of the type which present] comprising a plurality of pairs of scissors-connected tubular elements [whose] having extremities [are] hinged in universal joints [and in which the] said universal joints [are] being integral delimited by [large,] substantially equal and parallel faces [preferably substantially parallelepiped in form] and [which present] forming four seats [corresponding to the] each in correspondence with a side [faces] face to accept hinged elements, [characterized by the] the improvement comprising: each of said universal joints [having grooves] forming a groove along [the sides] each side of [the] a face [on which] forming the four seats [are provided], [close] proximate to [the edge] and parallel to [the same] a corresponding edge of each said side, which cooperate with a C-sectioned fixing [elements] element to hold united two matching said universal joints from the two coupled structures [to be coupled].

2. (Amended) [Composite Structures] A composite structure according to Claim 1, [characterized by] wherein the at least two coupled structures [joined being] are superimposed and [presenting, besides], in [the] an inside surface

of the face of the universal joint [in which there are] having said four seats [for hinging the extended elements], forming a fifth seat in which is fixed [the] an extremity of an extendible telescopic tubular element whose other extremity is fixed to [the] an opposed universal joint [of the underlying universal joint].

3. (Amended) [Structures joined] A composite structure according to [Claims] Claim 1 [or 2], [characterized by] wherein the C-[shaped] sectioned fixing [elements being] element is a substantially rectangular [sheets] sheet of flexible material [with] having two opposite folded and inverted edges.

4. (Amended) [Structures joined] A composite structure according to [the Claims] Claim 1 [to 2], [characterized by the] wherein a folded and inverted [edges] edge of the C-[shaped] sectioned fixing [elements presenting] element has a dimension and a shape corresponding to the [grooves] groove on [the faces] each said side of the face of the universal joint.

5. (Amended) [Composite structures] A composite structure according to [Claims] Claim 1 [to 4], [characterized by] wherein the C-[shaped]

sectioned fixing [elements being] element is applied only on [the] each external [faces] face of the universal joints that are on [the] an external surface of the structure.

6. (Amended) [Composite structures] A composite structure according to [Claims] Claim 1 [to 4], [characterized by] wherein the C-[shaped] sectioned fixing [elements with inverted edges covering most] element covers a substantial portion of [the] a corresponding side [faces] face of [the] superimposed universal joints and [providing for] forms cut-outs corresponding to the seats for the hinged extended elements.

7. (Amended) [Composite structures] A composite structure according to [Claims] Claim 1 [to 6], [characterized by the] wherein matching faces of the universal joints of the joined structures [presenting] forms at least one [or more] suitable [perforations to house] perforation housing pivots that prevent any movement on [the surfaces of] a contact surface of the universal joints.

8. (Amended) [Universal joints] In a universal joint of substantially parallelepiped form [providing in one of the larger faces for] forming four hinging seats in one of a larger face in correspondence with each side face,

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[corresponding to the side faces,] suitable for fixing [the extremities] an extremity of an extended [elements] element, [characterized by presenting grooves along the sides] each side of the larger face [in which are scheduled seats for hinging the extended elements] having said four hinging seats forming a groove [in proximity of the edges] proximate to and parallel to a corresponding edge of each said side [the same edges], [that could] adapted to cooperate with a C-sectioned fixing [elements] element to unite two matched said universal joints.

9. (Amended) [Universal joints] A universal joint according to Claim 8, [characterized by presenting internally to the face carrying the grooves,] wherein said larger face forms in an internal surface, a fifth seat into which is fixed the extremity of an extendible telescopic tubular element.

VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) & 1.27(b))-INDEPENDENT INVENTOR

Docket Number  
SCP-109

Applicant or Patentee: Sergio CAZZOLARO

Serial No.: 09/913,995

Filed: 22 August 2001

Title: STRUCTURES WHICH CAN BE DISMANTLED AND FOLDED,  
CONSISTING OF INTERCONNECTING TUBULAR ELEMENTS

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c), for purposes of paying reduced fees to the United States Patent and Trademark Office, with regard to the invention described in:

- ☐ the specification filed herewith with title as listed above.  
☒ the application identified above.  
☐ the patent identified above.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ no such person, concern or organization exists.  
☐ each such person, concern or organization is listed below.

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Sergio CAZZOLARO

NAME OF INVENTOR

NAME OF INVENTOR

NAME OF INVENTOR

NAME OF INVENTOR

Signature of Inventor

Signature of Inventor

Signature of Inventor

Signature of Inventor

Date 22/11/2001

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Date

Date

09/913995  
513 Rec'd PCT/PTO 22 AUG 2001

Based Upon: PCT/IT00/00053

SUBSTITUTE SPECIFICATION

EXPRESS MAIL NO. EL815472581 US

MAILED 22 AUGUST 2001

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**STRUCTURES WHICH CAN BE DISMANTLED AND FOLDED,  
CONSISTING OF INTERCONNECTING TUBULAR ELEMENTS**

09913995-122001

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Based Upon: PCT/IT00/00053

**BACKGROUND OF THE INVENTION**

This invention relates to folding structures consisting of interconnected extended tubular elements. More particularly, this invention relates to portable folding structures which can be extended horizontally or vertically, that can be used for product display or as supports for raised loads, such as for instance platforms, walkway bases, technical pavements, rostrums, stands, boxes. These structures comprise a plurality of interconnected parallelepiped cells in which the sides faces of the parallelepiped are defined by a pair of tubular elements interconnected by a scissors-connector. In these structures, each extremity of the extended tubular elements which constitute the pair of scissors-connected elements, is inserted by rotation into a seat in an articulated universal joint, also parallelepiped in form. The universal joint presents, on one of the larger faces, a hinging seat corresponding to each side face, and can therefore accept up to four extremities of tubular elements. In the case of structures that must bear heavy loads, a variation to the embodiment described above has been used for some time in which the universal joints provide for a fifth seat on the surface of said face into which is fixed a tubular element, within which another tubular element of smaller diameter is inserted as a sliding fit and whose extremity is inserted into the face of a similar universal joint. The tubular element inserted into the face of the universal joint is fixed and is stopped against the opposed joint into which is inserted the extremity of the element that slides inside.

It is often necessary to arrange for exhibition structures or raised support higher than is attainable with the single structure. In this case, more identical (or similar) structures are superimposed such that, in the overlap, the upper faces of the universal joints of the underlying structure are matched to the corresponding lower faces of the upper structure.

Devices are known to increase the height of the exhibition or support systems mentioned above. For instance, an exhibition system that could give rise to structures of different height is described in European Patent EP-A-0 419 006.

The structure described in this patent is complex, provides for a plurality of articulated elements and therefore requires long assembly and dismantling times.

The system proposed in European Patent EP-A-0 884 425 provides for uniting the joints of two structures by connecting the extremities of the two telescopic elements, for instance by means of screw or pin systems.

This system also presupposes complex and onerous setting-up operations, as well as relatively long dismantling and assembly times.

### **SUMMARY OF THE INVENTION**

It is one object of this invention to provide a simple and rapid method of joining two or more structures of the type comprising pairs of extended tubular shear-connected elements, whose extremity is hinged in universal joints and in which

the universal joints are defined integral with equal and parallel larger faces and are preferably substantially parallelepiped in form and present four hinging seats set in one of the larger faces near a side face.

It is another object of this invention to provide a means for coupling two or more superimposed structures of the type described above that furthermore present in the inside surface of the face of the universal joint, in which are seats for the hinging of the extended elements, a fifth seat into which is fixed the extremity of an extendible telescopic tubular element whose other extremity is fixed to the opposite underlying universal joint.

It is yet another object of this invention to provide a device that allows the coupling of the aforesaid structures.

These and other objects are addressed using the universal joints described above that form grooves along the sides of the face, in which are scheduled seats for lodging the extended elements in proximity to the edges of the type and parallel to the same edges, that cooperate with C-sectioned fixing elements to hold two matching universal joints belonging to two superimposed structures together.

According to a preferred embodiment of this invention, the C-shaped fixing elements are substantially rectangular sheets of flexible material with two opposite edges folded and inverted, also referred to herein as the C-shaped spring or C-spring. The folded and inverted edges of the C-shaped spring present dimensions

and forms corresponding to those of the grooves cut into the faces of the universal joints.

The C-shaped springs with inverted edges cover a substantial portion of the corresponding side faces of the superimposed universal joints and they could provide for, in some cases, grooves in correspondence with seats of lodgement of the extended elements and they could take different configurations depending on their use.

The C-shaped springs can be applied to all the side faces of all the joints that are matched in the overlap or in coupling of multiple structures.

It has been found, however, that to get sufficient stability, in most cases it is sufficient to apply the C-springs only on the external faces of the universal joints that are on the external surface of the structure. The application of the C-springs to only the external faces of the joints enormously simplifies the operation of assembly and dismantling of the coupled structures.

To further guarantee the stability of the joined structure, the faces of the matching joints can form one or more suitable perforations for the housing pivots that prevent any movement of the joints on the contact pivot.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

These and other objects and features of this invention will be better understood from the following detailed description taken in conjunction with the

drawings, which are by way of example only and should not be interpreted as limiting the invention, wherein:

Fig. 1 shows a view in perspective of a universal joint in accordance with one embodiment of this invention;

Fig. 2 shows a side view of a C-sectioned spring suitable for use with the joint of Fig. 1;

Fig. 3 is a view in perspective of the spring of Fig. 2;

Fig. 4 shows a side view of two joints belonging to two superimposed structures fixed together by means of the springs of Figs. 2 and 3;

Fig. 5 is an exploded view of a preferred system of connection of structures in accordance with one embodiment of this invention; and

Fig. 6 is a simplified scheme of two superimposed structures coupled according to one embodiment of this invention.

#### **DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS**

With reference to Figs. 1 to 4, the universal joint 1 forms four grooves 2, 2', 2" and 2''' on one of its larger faces in correspondence with each side face, that can accept hinged extended tubular elements, not shown in the figure. On face 3 of the universal joint that forms the four grooves (2, 2', 2" and 2''') there is an opening 4 to fix the extremity of a tubular extended element 5 (shown in Fig. 4), within which another tubular element slides, not shown in the figure, and connected with a

corresponding universal joint. The edges of the face of the universal joint form grooves 6 which constitute seats to accept one of the extremities 8 (shown in Figs. 2 and 3) of a spring 9 as shown in Fig. 4.

The insertion of the two extremities 8 of the spring 9 into the grooves on the nonmatching faces of two joints belonging to two superimposed structures allows the coupling of the structures to be maintained fixed. The insertion of the springs is easily achieved after the structures have been superimposed by snapping the inverted extremities 8 of the springs 9 into the grooves 6, where they remain locked. The operation of dismantling is performed quickly, for instance, by removing one of the two inverted extremities 8 of the C-springs 9 from the groove 6.

Fig. 5 shows a preferred embodiment of this invention, which provides for the use of universal joints whose face opposite to that in which the grooves have been made contains the opening 10 that can accept pivots 11 that prevent any relative movement of the joints in the horizontal plane.

Fig. 6 shows a side view of a support system for elevated loads according to one embodiment of this invention, obtained by joining two structures.

The said figure shows the extended elements 12 joined with scissors-connection and hinged in seats 2 of the universal joint, as well as the telescopic extension elements 5, that assure resistance to loading of the structure.

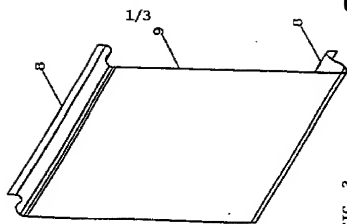


FIG. 3



FIG. 2

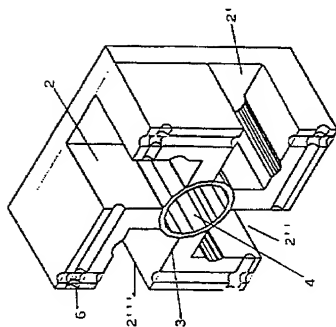


FIG. 1



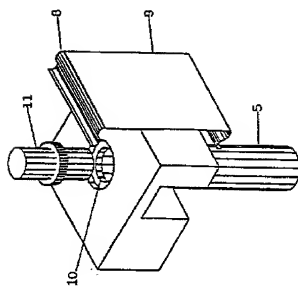
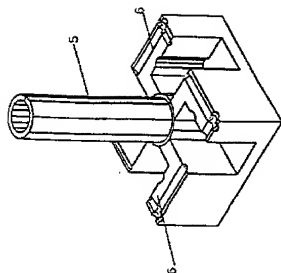


FIG. 5

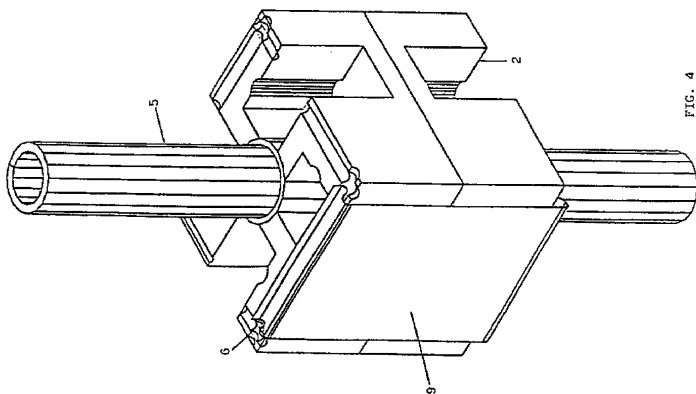


FIG. 4

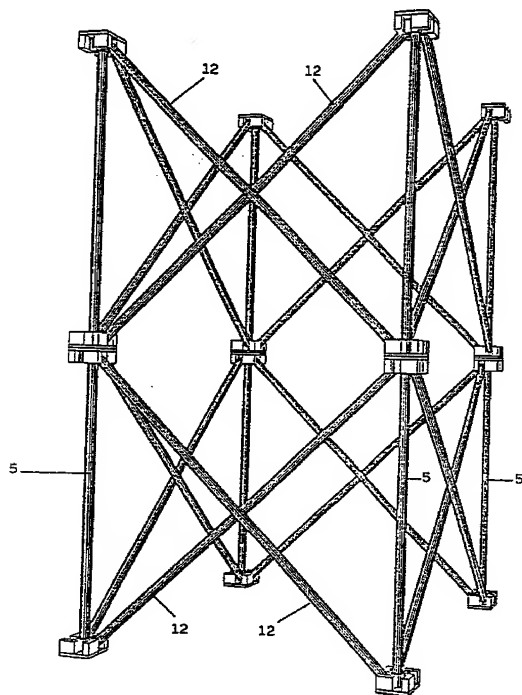


FIG. 6

STRUCTURES WHICH CAN BE DISMANTLED AND FOLDED,  
CONSISTING OF INTERCONNECTING TUBULAR ELEMENTS

## 5 BACKGROUND OF THE INVENTION

<sup>THIS</sup>  
[The present] invention relates to folding structures consisting of interconnected extended tubular elements. More particularly, <sup>THIS</sup> [the present] invention relates to portable folding structures which can be extended horizontally or vertically, that  
10 can be used for product display or as supports for raised loads, such as for instance platforms, walkway bases, technical pavements, rostrums, stands, boxes].  
<sup>These structures comprise</sup>  
[comprising] a plurality of interconnected parallelepiped cells in which the sides faces of the parallelepiped are defined by a pair of tubular elements interconnected by a scissors-connector. In these structures, each extremity of the extended tubular  
15 elements which constitute the pair of scissors-connected elements, is inserted by rotation into a seat in an articulated universal joint, also parallelepiped in form. The universal joint presents, on one of the larger faces, a hinging seat corresponding to each side face, and can therefore accept up to four extremities of tubular elements. In the case of structures that must bear heavy loads, a variation  
20 to the embodiment described above has been used for some time in which the universal joints provide for a fifth seat on the surface of said face into which is fixed a tubular element, within which another tubular element of smaller diameter is inserted as a sliding fit and whose extremity is inserted into the face of a similar universal joint. The tubular element inserted into the face of the universal joint is

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fixed and is stopped against the opposed joint into which is inserted the extremity  
<sup>the</sup>  
 of element that slides inside.

It is often necessary to arrange for exhibition structures or raised support higher  
 than is attainable with the single structure. In this case, more identical (or similar)

- 5 structures are superimposed such that, in the overlap, the upper faces of the  
 universal joints of the underlying structure are matched to the corresponding lower  
 faces of the upper structure.

Devices are known to increase the height of the exhibition or support systems  
 mentioned above. For instance, an exhibition system that could give rise to  
<sup>European Patent</sup>  
 10 structures of different height is described in EP-A-0 419 006.

The structure described in <sup>this</sup> [said] patent is complex, provides for a plurality of  
 articulated elements and therefore requires long assembly and dismantling times.

The system proposed in <sup>European Patent</sup> [the] EP-A-0 884 425 provides for uniting the joints of two  
 structures by connecting the extremities of the two telescopic elements, for

- 15 instance by means of screw or pin systems.

This system also presupposes complex and onerous setting-up operations, as well  
 as relatively long dismantling and assembly times.

It is one object of this <sup>SUMMARY OF THE INVENTION</sup> to provide  
 [One purpose of the present invention] is provision of a simple and rapid method of  
 joining two or more structures of the type [consisting of] <sup>comprising</sup> pairs of extended tubular

- 20 shear-connected elements, whose extremity is hinged in universal joints and in  
 which the universal joints are defined integral with equal and parallel larger faces  
 and are preferably substantially parallelepiped in form and present four hinging  
 seats set in one of the larger faces near a side face.

- It is another object of this <sup>to provide a means for</sup>  
 [A second purpose of the present] invention [is the] coupling [of] two or more  
 superimposed structures of the type described above that furthermore present in  
 the inside surface of the face of the universal joint, in which are seats for the  
 hinging of the extended elements, a fifth seat into which is fixed the extremity of  
 5 an extendible telescopic tubular element whose other extremity is fixed to the  
 opposite underlying universal joint.  
 It is yet another object of this <sup>to provide</sup>  
 [And a further purpose of the present] invention [is] a device that allows the coupling  
 of the aforesaid structures.]  
<sup>These and other objects addressed</sup>  
 [The purposes of the present invention] are [achieved] using the universal joints  
 10 described above that <sup>form</sup> [present] grooves along the sides of the face, in which are  
 scheduled seats for lodging the extended elements in proximity to the edges of the  
 type and parallel to the same edges, that cooperate with C-sectioned fixing  
 elements to hold two matching universal joints belonging to two superimposed  
 structures together.  
 15 According to a preferred embodiment of <sup>this</sup> [the] invention, the C-shaped fixing  
 elements are substantially rectangular sheets of flexible material with two opposite  
 edges folded and inverted, <sup>herein</sup> [in the following] also referred to as the C-shaped spring  
 or C-spring. The folded and inverted edges of the C-shaped spring present  
 dimensions and forms corresponding to those of the grooves cut into the faces of  
 20 the universal joints.  
<sup>a substantial portion</sup>  
 The C-shaped springs with inverted edges cover [most] of the corresponding side  
 faces of the superimposed universal joints and they could provide for, in some

cases, grooves in correspondence with seats of lodgement of the extended elements and they could take different configurations depending on their use.

The C-shaped springs <sup>can</sup> [could] be applied to all the side faces of all the joints that are matched in the overlap or in coupling of multiple structures.

- 5 It has been found, however, that to get sufficient stability <sup>in</sup> in most cases it is sufficient to apply the C-springs only on the external faces of the universal joints that are on the external surface of the structure. The application of the C-springs to only the external faces of the joints enormously simplifies the operation of assembly and dismantling of the coupled structures.

- 10 To further guarantee the stability of the joined structure, the faces of the matching joints <sup>can form</sup> [could present] one or more suitable perforations for the housing pivots that prevent any movement of the joints on the contact pivot.

*BRIEF DESCRIPTION OF THE DRAWINGS of this invention*  
 [These and other objects and features will be better understood from the following detailed description taken in conjunction with the preferred embodiments of the same that are described with the aid of the attached drawings, which only should not be interpreted as limiting the invention wherein.]

- 15 drawings [These sketches and the embodiments] are by way of example and [must] should not be interpreted as limiting the invention [wherein].

[In the sketches:]

[figure 1] <sup>Fig. 1</sup> shows a view in perspective of a universal joint <sup>in accordance with one embodiment of this</sup> [according to the] invention;

- 20 [figure 2] <sup>Fig. 2</sup> shows a side view of [the] C-sectioned spring <sup>suitable for use</sup> [that could cooperate] with the joint of figure 1;

[figure 3] <sup>Fig. 3</sup> is a view in perspective of the spring of figure 2;

- Fig. 4  
 [- figure 4] shows a side view of two joints belonging to two superimposed structures fixed together by means of the springs of figures 2 and 3.
- Fig. 5  
 [- figure 5 is an exploded view of a preferred system of connection of structures in accordance with one embodiment of this according to the invention]; and
- Fig. 6  
 5 [- figure 6 is a simplified scheme of two superimposed structures coupled one embodiment of this according to invention.
- DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS
- With reference to figures 1 to 4, the universal joint 1 presents four forms 2, 2', 2'' and 2''' on one of its larger faces in correspondence to the side face, that could accept hinged extended tubular elements not shown in the figure. On face 3 of the universal joint that presents the four grooves (2, 2', 2'' and 2''') there is an opening 4 to fix the extremity of a tubular extended element 5, within which another tubular element slides, not shown in the figure and connected with a corresponding universal joint. Along the edges of said face of the universal joint are grooves 6 which constitute seats to accept one of the extremities 8 of a spring 9 as shown in figure 4.
- The insertion of the two extremities 8 of the spring 9 into the grooves on the non-matching faces of two joints belonging to two superimposed structures allows the coupling of the structures to be maintained fixed. The insertion of the springs is easily achieved after the structures have been superimposed by snapping the inverted extremities 8 of the springs 9 into the grooves, where they remain locked. The operation of dismantling is performed quickly, for instance, by removing one of the two inverted extremities 8 of the C-springs from the groove.

<sup>Fig.</sup> [Figure] 5 shows a preferred embodiment of <sup>this</sup> [the] invention <sup>which</sup> [This] provides for the use of universal joints whose face opposite to that in which the grooves have been made contains the opening 10 that can accept pivots 11 that prevent any relative movement of the joints in the horizontal plane.

- 5 <sup>Fig.</sup> [Figure] 6 shows a side view of a support system for elevated loads according to <sup>one embodiment</sup> [the] <sup>of this</sup> invention, obtained by joining two structures.

The said figure shows the extended elements 12 joined with scissors-connection and hinged in seats 2 of the universal joint, as well as the telescopic extension elements 5, that assure resistance to loading of the structure.



3/pstb

«STRUCTURES WHICH CAN BE DISMANTLED AND FOLDED,  
CONSISTING OF INTERCONNECTING TUBULAR ELEMENTS»

5

- The present invention relates to folding structures consisting of interconnected extended tubular elements. More particularly, the present invention relates to portable folding structures which can be extended horizontally or vertically, that
- 10 can be used for product display or as supports for raised loads, such as for instance platforms, walkway bases, technical pavements, rostrums, stands, boxes, comprising a plurality of interconnected parallelepiped cells in which the sides faces of the parallelepiped are defined by a pair of tubular elements interconnected by a scissors-connector. In these structures each extremity of the extended tubular
- 15 elements which constitute the pair of scissors-connected elements, is inserted by rotation into a seat in an articulated universal joint, also parallelepiped in form. The universal joint presents, on one of the larger faces, a hinging seat corresponding to each side face, and can therefore accept up to four extremities of tubular elements. In the case of structures that must bear heavy loads a variation
- 20 to the embodiment described above has been used for some time in which the universal joints provide for a fifth seat on the surface of said face into which is fixed a tubular element, within which another tubular element of smaller diameter is inserted as a sliding fit and whose extremity is inserted into the face of a similar universal joint. The tubular element inserted into the face of the universal joint is

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fixed and is stopped against the opposed joint into which is inserted the extremity of element that slides inside.

It is often necessary to arrange for exhibition structures or raised support higher than is attainable with the single structure. In this case, more identical (or similar)

5 structures are superimposed such that, in the overlap, the upper faces of the universal joints of the underlying structure are matched to the corresponding lower faces of the upper structure.

Devices are known to increase the height of the exhibition or support systems mentioned above. For instance, an exhibition system that could give rise to

10 structures of different height is described in EP-A-0 419 006.

The structure described in said patent is complex, provides for a plurality of articulated elements and therefore requires long assembly and dismantling times.

The system proposed in the EP-A-0 884 425 provides for uniting the joints of two structures by connecting the extremities of the two telescopic elements, for

15 instance by means of screw or pin systems.

This system also presupposes complex and onerous setting-up operations, as well as relatively long dismantling and assembly times.

One purpose of the present invention is provision of a simple and rapid method of joining two or more structures of the type consisting of pairs of extended tubular

20 shear-connected elements, whose extremity is hinged in universal joints and in which the universal joints are defined integral with equal and parallel larger faces and are preferably substantially parallelepiped in form and present four hinging seats set in one of the larger faces near a side face.

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A second purpose of the present invention is the coupling of two or more superimposed structures of the type described above that furthermore present in the inside surface of the face of the universal joint, in which are seats for the hinging of the extended elements, a fifth seat into which is fixed the extremity of  
5 an extendible telescopic tubular element whose other extremity is fixed to the opposite underlying universal joint.

And a further purpose of the present invention is a device that allows the coupling of the aforesaid structures.'

The purposes of the present invention are achieved using the universal joints  
10 described above that present grooves along the sides of the face, in which are scheduled seats for lodging the extended elements in proximity to the edges of the type and parallel to the same edges, that cooperate with C-sectioned fixing elements to hold two matching universal joints belonging to two superimposed structures together.

15 According to a preferred embodiment of the invention, the C-shaped fixing elements are substantially rectangular sheets of flexible material with two opposite edges folded and inverted, in the following also referred to as the C-shaped spring or C-spring. The folded and inverted edges of the C-shaped spring present dimensions and forms corresponding to those of the grooves cut into the faces of  
20 the universal joints.

The C-shaped springs with inverted edges cover most of the corresponding side faces of the superimposed universal joints and they could provide for, in some

cases, grooves in correspondence with seats of lodgement of the extended elements and they could take different configurations depending on their use.

The C-shaped springs could be applied to all the side faces of all the joints that are matched in the overlap or in coupling of multiple structures.

- 5 It has been found, however, that to get sufficient stability in most cases it is sufficient to apply the C-springs only on the external faces of the universal joints that are on the external surface of the structure. The application of the C-springs to only the external faces of the joints enormously simplifies the operation of assembly and dismantling of the coupled structures.

- 10 To further guarantee the stability of the joined structure, the faces of the matching joints could present one or more suitable perforations for the housing pivots that prevent any movement of the joints on the contact pivot.

The present invention will now be illustrated in more detail making reference to preferred embodiments of the same that are described with the aid of the attached

- 15 drawings. These sketches and the embodiments are by way of example and must not be interpreted as limiting the invention.

In the sketches:

- figure 1 shows a view in perspective of a universal joint according to the invention;
- 20 - figure 2 shows a side view of the C-sectioned spring that could cooperate with the joint of figure 1;
- figure 3 is a view in perspective of the spring of figure 2;

- figure 4 shows a side view of two joints belonging to two superimposed structures fixed together by means of the springs of figures 2 and 3.

- figure 5 is an exploded view of a preferred system of connection of structures according to the invention.

- 5 - figure 6 is a simplified scheme of two superimposed structures coupled according to invention.

With reference to figures 1 to 4, the universal joint 1 presents four grooves 2, 2', 2» and 2'» on one of its larger faces in correspondence to the side face, that could accept hinged extended tubular elements not shown in the figure. On face 3 of the universal joint that presents the four grooves (2, 2', 2» and 2'») there is an opening 4 to fix the extremity of a tubular extended element 5, within which another tubular element slides, not shown in the figure and connected with a corresponding universal joint. Along the edges of said face of the universal joint are grooves 6 which constitute seats to accept one of the extremities 8 of a spring 9 as shown in figure 4.

The insertion of the two extremities of the spring 9 into the grooves on the non-matching faces of two joints belonging to two superimposed structures allows the coupling of the structures to be maintained fixed. The insertion of the springs is easily achieved after the structures have been superimposed by snapping the inverted extremities 8 of the springs 9 into said grooves, where they remain locked. The operation of dismantling is performed quickly, for instance, by removing one of the two inverted extremities 8 of the C-springs from the groove.

Figure 5 shows a preferred embodiment of the invention. This provides for the use of universal joints whose face opposite to that in which the grooves have been made contains the opening 10 that can accept pivots 11 that prevent any relative movement of the joints in the horizontal plane.

- 5 Figure 6 shows a side view of a support system for elevated loads according to the invention, obtained by joining two structures.

The said figure shows the extended elements 12 joined with scissors-connection and hinged in seats 2 of the universal joint, as well as the telescopic extension elements 5, that assure resistance to loading of the structure.

## CLAIMS

1. Composite structure obtained by coupling two or more structures of the type which present pairs of scissors-connected tubular elements whose extremities are hinged in universal joints and in which the universal joints are integral delimited by large, equal and parallel faces preferably substantially parallelepiped in form and which present four seats corresponding to the side faces to accept hinged elements, characterized by the universal joints having grooves along the sides of the face on which the four seats are provided, close to the edge and parallel to the same edge, which cooperate with C-sectioned fixing elements to hold united two matching universal joints from the two structures to be coupled.
2. Composite Structures according to Claim 1, characterized by the structures joined being superimposed and presenting, besides, in the inside surface of the face of the universal joint in which there are seats for hinging the extended elements, a fifth seat in which is fixed the extremity of an extendible telescopic tubular element whose other extremity is fixed to the opposed joint of the underlying universal joint.
3. Structures joined according to Claims 1 or 2, characterized by the C-shaped fixing elements being substantially rectangular sheets of flexible material with two opposite folded and inverted edges.
4. Structures joined according to the Claims 1 to 2, characterized by the folded and inverted edges of the C-shaped fixing elements presenting dimension and shape corresponding to the grooves on the faces of the universal joint.

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5. Composite structures according to Claims 1 to 4, characterized by the C-shaped fixing elements being applied only on the external faces of the universal joints that are on the external surface of the structure.
6. Composite structures according to Claims 1 to 4, characterized by the C-shaped
- 5 fixing elements with inverted edges covering most of the corresponding side faces of the superimposed universal joints and providing for cut-outs corresponding to the seats for the hinged extended elements.
7. Composite structures according to Claims 1 to 6, characterized by the matching faces of the joints of the joined structures presenting one or more suitable
- 10 perforations to house pivots that prevent any movement on the surfaces of contact of the joints.
8. Universal joints of substantially parallelepiped form providing in one of the larger faces for four hinging seats, corresponding to the side faces, for fixing the extremities of extended elements, characterized by presenting grooves along the
- 15 sides of the face in which are scheduled seats for hinging the extended elements, in proximity of the edges and parallel to the same edges, that could cooperate with C-sectioned fixing elements to unite two matched universal joints.
- 9: Universal joints according to Claim 8, characterized by presenting internally to the face carrying the grooves, a fifth seat into which is fixed the extremity of an
- 20 extendible telescopic tubular element.



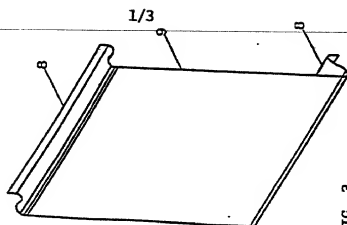


FIG. 3

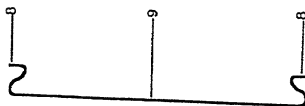


FIG. 2

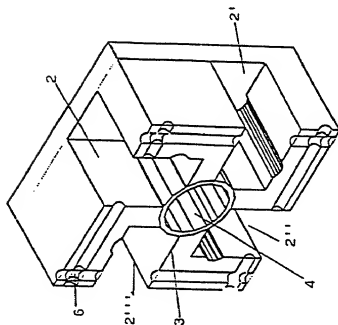


FIG. 1

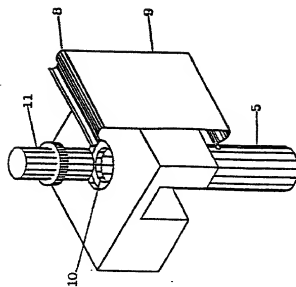
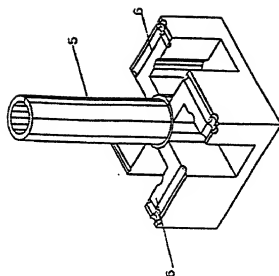


FIG. 5

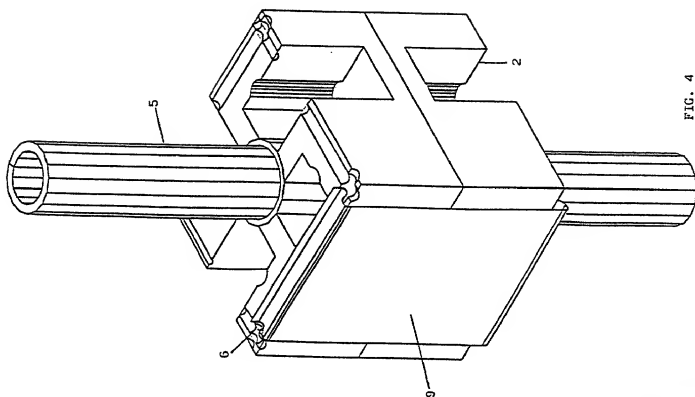


FIG. 4

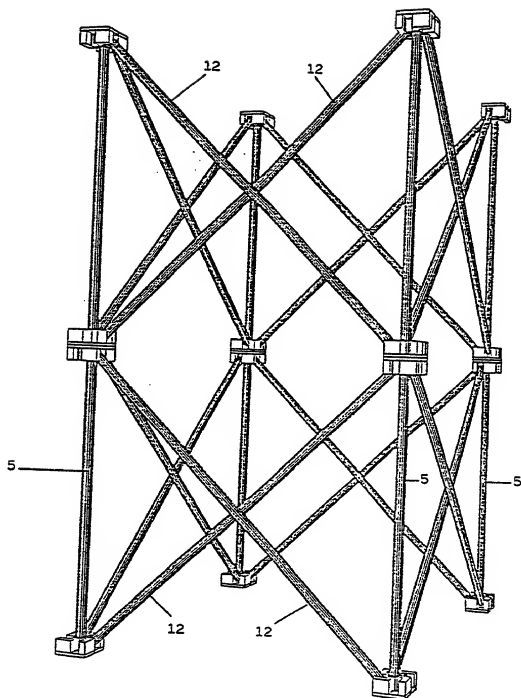


FIG. 6

## Declaration and Power of Attorney for Patent Application

### Dichiarazione e procura ai fini della domanda di brevetto

#### Italian Language Declaration

Il sottoscritto inventore dichiara che:

La propria residenza, recapito postale e cittadinanza corrispondono a quanto indicato in calce, sotto la propria firma.

Ritiene di essere il primo ed unico inventore originale (se viene elencato in calce un solo nominativo) o il coinventore primo ed originale (se è elencato più di un nominativo) del oggetto rivendicato e per il quale il sottoscritto presenta domanda di brevetto. La invenzione in questione è chiamata

**STRUCTURES WHICH CAN BE DISMANTLED  
AND FOLDED, CONSISTING OF  
INTERCONNECTING TUBULAR ELEMENTS**

e la sua descrizione è allegata alla presente Dichiarazione a meno che non sia spuntata la seguente casella:

☒ Il \_\_\_\_\_  
è stata depositata una domanda di brevetto  
statunitense numero o una domanda di brevetto  
internazionale PCT numero \_\_\_\_\_  
che è stata modificata il \_\_\_\_\_  
(se applicabile).

Il sottoscritto dichiara in oltre di aver letto e compreso il contenuto della descrizione identificata in precedenza, rivendicazioni comprese, come modificati dall'eventuale modifica summenzionata.

Il sottoscritto riconosce l'obbligo di rivelare informazioni essenziali ai fini della determinazione della brevettabilità ai sensi del Titolo 37, Codice dei Regolamenti Federali, § 1.56.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

**STRUCTURES WHICH CAN BE DISMANTLED  
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the specification of which is attached hereto unless the following box is checked:

☐ was filed on \_\_\_\_\_  
as United States Application Number or PCT  
International Application Number \_\_\_\_\_  
and was amended on \_\_\_\_\_  
(if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

# Italian Language Declaration

Il sottoscritto rivendica con la presente la priorità prevista dal Titolo 35, Codice degli Stati Uniti, § 119(e)-(d) o § 365(b) in relazione a qualsiasi domanda o domande estere di brevetto o certificato di inventore, o dal Titolo 35, § 365(a) degli stessi Codici in relazione a qualsiasi domanda internazionale PCT nella quale è designato almeno un paese diverso dagli Stati Uniti, i suddetti domande e certificati essendo elencati sotto, e puntando les seguenti caselle, ha anche identificato sotto qualsiasi domanda estera di brevetto o certificato di inventore, o domanda internazionale PCT, la cui data di deposito preceda quella della domanda per la quale è rivendicata la priorità.

Prior Foreign Application(s)  
Domanda Estere Anteriori  
**PCT/IT00/00053**

(Number) (Country)  
(Numero) (Nazione)

(Number) (Country)  
(Numero) (Nazione)

Il sottoscritto rivendica con la presente i benefici previsti dal Titolo 35, Codici degli Stati Uniti, § 119(e), in relazione a qualsiasi domanda o domande provvisorie degli Stati Uniti elencate sotto.

(Application No.) (Filing Date)  
(N° della domanda) (Data di deposito)

(Application No.) (Filing Date)  
(N° della domanda) (Data di deposito)

Il sottoscritto rivendica con la presente i benefici previsti dal Titolo 35, Codice degli Stati Uniti, § 120, in relazione a qualsiasi domanda o domande statunitensi, o dal Titolo 35, § 365(c) degli stessi Codici in relazione a qualsiasi domanda internazionale PCT nella quale sono designati gli Stati Uniti, i suddette domande essendo elencate sotto e, nella misura in cui l'oggetto di ciascuna rivendicazione di questa domanda non sia stato esposto nella domanda statunitense o internazionale PCT anteriore nel modo previsto dal primo paragrafo del Titolo 35, Codice degli Stati Uniti, § 112, riconosce l'obbligo di rivelare informazioni essenziali ai fini della determinazione della brevettabilità ai sensi del Titolo 37, Codici dei Regolamenti Federali, § 1.56, le quali diventino disponibili durante il periodo compreso tra la data di deposito della domanda anteriore e la data di deposito nazionale o internazionale PCT della presente domanda.

**None** (Application)  
(Filing Date)

(N° della domanda) **None** (Data di deposito)

(Application No.) (Filing Date)  
(N° della domanda) (Data di deposito)

Con la presente, il sottoscritto dichiara veritiere tutte le affermazioni contenute in questa domanda in relazione alle proprie conoscenze e di ritenere vere tutte le affermazioni o affermazioni presentate. Dichiara inoltre che tali asserzioni sono state espresse nella piena consapevolezza che le dichiarazioni intenzionalmente false sono punibili con una multa, l'incarcerazione o entrambe, ai sensi della Sezione 1001 del Titolo 18 del Codice degli Stati Uniti e che tali dichiarazioni intenzionalmente false possono mettere a repentaglio la validità della domanda o di qualsiasi brevetto rilasciato in merito.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Priority Not Claimed  
Diritto di priorità non rivendicato

**18 February 2000** ☐

(Day/Month/Year Filed)  
(Giorno/Mese/Anno di deposito)

(Day/Month/Year Filed)  
(Giorno/Mese/Anno di deposito)

I hereby claim the benefit under Title 35, United States Code, § 119(c) of any United States provisional application(s) listed below.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

**None**

(Status) (patented, pending, abandoned)  
(Stato) (concessione di brevetto, in corso di esame, abbandono)

**None**

(Status) (patented, pending, abandoned)  
(Stato) (concessione di brevetto, in corso di esame, abbandono)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

# Italian Language Declaration

PROCURA: Il sottoscritto inventore nomina con la presente il seguente avvocato o avvocati e/o agente o agenti al fine di istruire questa pratica e di condurre tutte le operazioni ad essa pertinenti presso l'Ufficio dei Brevetti e Marchi di Fabbrica: *(Elencare il nome ed il numero di matricola).*

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: *(list name and registration number).*

**Mark E. Fejer Reg. No. 34,817**

**Mark E. Fejer Reg. No. 34,817**

Inviare le corrispondenza a:

**Pauley Petersen Kinne & Fejer**  
2800 W. Higgins Road, Suite 365  
Hoffman Estates, Illinois 60195

Send Correspondence to:

**Pauley Petersen Kinne & Fejer**  
2800 W. Higgins Road, Suite 365  
Hoffman Estates, Illinois 60195

Telefonare a: *(nome e numero telefonico)*

Direct Telephone Calls to: *(name and telephone number)*

**Mark E. Fejer**  
(847) 490-1400

**Mark E. Fejer**  
(847) 490-1400

**Douglas H. Pauley**  
Reg. No. 33,295

**Maxwell J. Petersen**  
Reg. No. 32,772

**Charles C. Kinne**  
Reg. No. 31,631

**Kevin D. Erickson Reg. No. 38,736**

**Nick C. Kottis Reg. No. 31,974**

Nome e cognome dell'unico o del primo inventore <b>Sergio CAZZOLARO</b>		Full name of sole or first inventor <b>Sergio CAZZOLARO</b>	
Firma dell'inventore	Data	Inventor's signature	Date
<b>Localita Villa Ivana</b>		<b>Localita Villa Ivana</b>	12/11/2001
<b>I-26823 Castiglione d'Adda (IT)</b>		<b>I-26823 Castiglione d'Adda (IT)</b>	
Cittadinanza	<b>Italy</b>	Citizenship	<b>Italy</b>
Recapito postale		Post Office Address	
Nome e cognome dell'eventuale secondo coinventore		Full name of second joint inventor, if any	
Firma del secondo coinventore	Data	Second Inventor's signature	Date
Residenza		Residence	
Cittadinanza		Citizenship	
Recapito postale		Post Office Address	

(Fornire le stesse informazioni e le firme del terzo e degli ulteriori coinventori.)

(Supply similar information and signature for third and subsequent joint inventors.)